

DISSIMILAR ACCUMULATION OF ORGANOCHLORINE COMPOUNDS, PBDES AND HBCD IN COLOSTRUM FROM MOTHERS LIVING IN URBAN/INDUSTRIAL AREAS ACCORDING TO GEOGRAPHIC ORIGIN

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Background and Aims: Human milk is lipid-rich and a good store of lipophilic pollutants such as organohalogen compounds. This study is aimed to determine the accumulation patterns of organochlorine compounds (OCs), PBDEs and HBCD in colostrum samples of general population from two urban/industrial areas, to compare them and to identify the main determinants of their accumulation in these populations.

Methods: 368 colostrum samples from Gipuzkoa and Sabadell INMA cohorts (1) were analysed for OCs (HCB, α -HCH, DDTs and PCBs), PBDEs (including BDE209) and HBCD. Maternal factors such as cohort area and geographic origin of mother were evaluated.

Results: In both cohorts 4,4'-DDE was the most abundant pesticide and PCB153 the main PCB congener, whereas PBDE levels were one-fold lower than OCs, BDE153 being the most abundant congener. Median levels were similar to previous observations in other European studies (2, 3). HBCD was detected in more than 50% of samples, with similar levels to those found for main PBDEs. Gipuzkoa cohort had significantly higher levels of main OCs (especially PCBs) and PBDEs, compared to Sabadell. Regarding geographic origin of mothers in both cohorts, those from Latin America had significantly higher concentrations of 4,4'-DDT and 4,4'-DDE than European mothers, whereas HCB, α -HCH, PCBs and BDE153 were significantly higher in European women than in those from Latin America.

Conclusions: OCs and PBDEs were higher in Gipuzkoa than in Sabadell colostrum samples, reflecting the influence of heavy industry in Gipuzkoa area. In both cohorts, geographic origin of mothers was the main determinant of OC and PBDE concentrations. Those from Latin America have higher concentrations of 4,4'-DDT and 4,4'-DDE whereas European mothers exhibit higher concentrations of compounds of industrial origin. The higher accumulation of industrial pollutants is observed independently of the European banning regulations that control the present use of these compounds.

References:

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